APPENDIX B

BASIN ELECTRIC LETTER TO NDDH
DATED SEPTEMBER 7, 2001

BASIN ELECTRIC POWER COOPERATIVE

1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA 58503-0564
PHONE 701-223-0441
FAX: 701/224-5336

September 7, 2001

Mr. Terry O'Clair
Director, Division of Air Quality
Environmental Health Section
North Dakota Department of Health
1200 Missouri Avenue
Bismarck, ND 58504-5264

Re: Response of Basin Electric to Department Requests
Dated July 3, 2001 for Leland Olds Station

Dear Mr. O'Clair:

The North Dakota Department of Health ("NDDH") has requested Basin Electric Power Cooperative ("BEPC" or "Basin Electric") to provide information concerning a possible major reconsideration of Prevention of Significant Deterioration Class I increment consumption by major, minor and area sources in North Dakota. This process may lead to the imposition of further controls on some or all of those sources. This letter is Basin Electric's response to your July 3, 2001 request for information with respect to Basin Electric's Leland Olds Station. We have also used this opportunity to provide you with our view of important issues affecting this undertaking.

EPA Threatened SIP Call

Basin Electric sincerely appreciates the efforts of the NDDH to respond carefully and thoughtfully to the assertion by EPA Region 8's Director of Air and Radiation Program that increment "violations" resulting from permitted SO2 emissions from North Dakota sources now require NDDH to adopt additional controls on North Dakota sources to remove those violations. EPA threatens a "SIP call" if "appropriate control strategies" are not adopted.

One basis for EPA's assertions is the new and novel legal proposition advanced by EPA's Region 8's February 1, 2000 letter that the variances previously granted by NDDH to North Dakota sources, which models predicted would contribute to exceedances of the Class I increments, are no longer valid or effective and in fact the Class I SO2 increments must be met despite the issuance of those variances.

NDDH had granted the variances based on determinations by the Federal Land Manager of Theodore Roosevelt National Park (**TRNP**) and Lostwood Wilderness Area that those sources would not cause adverse effects on air quality related values ("AQRVs")in those Class I areas.

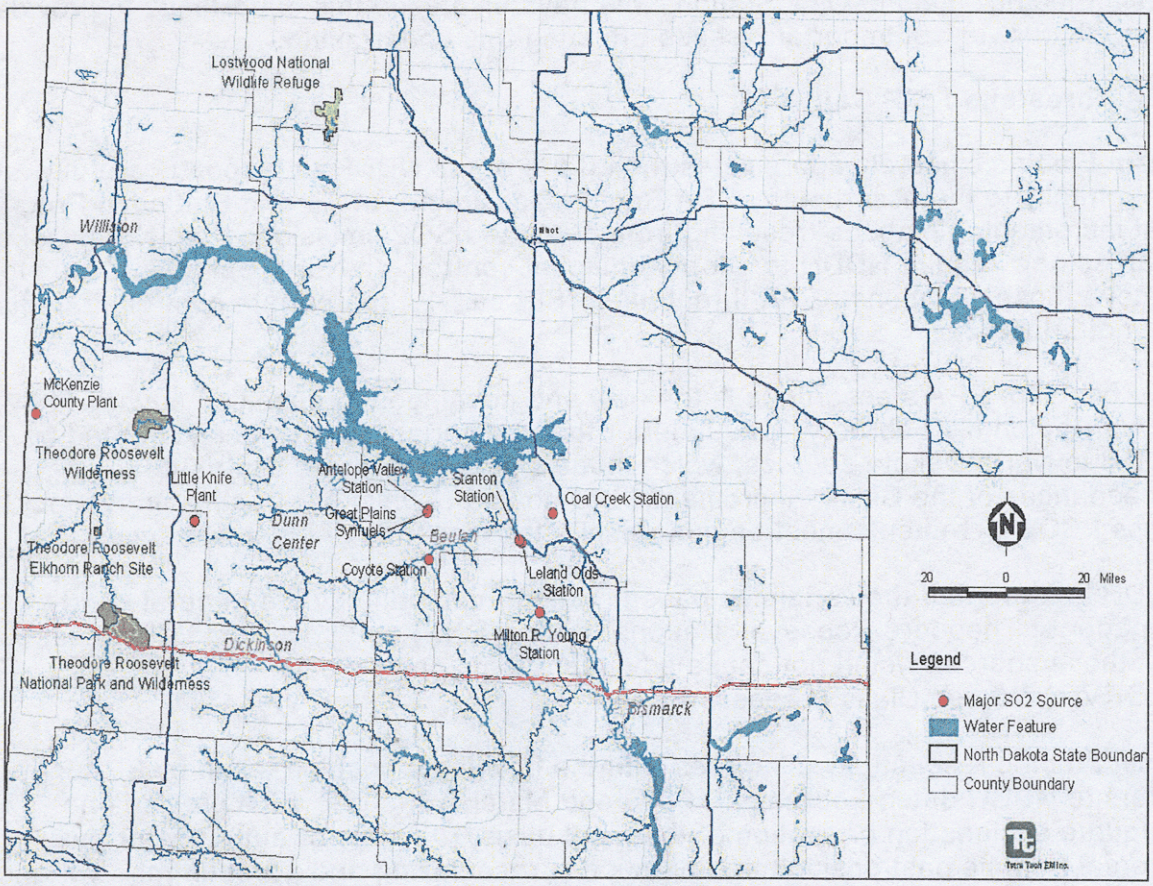
Basin Electric respectfully disagrees with the new legal position taken by EPA in its letters to NDDH dated February 1, 2000 and March 13, 2001. EPA provides no adequate explanation or citation of the legal basis, rationale or authority for this reversal from its past position and practice in recognizing and accepting the variances granted in North Dakota. Nor does EPA provide any basis for questioning the

consistent determinations by the Federal Land Manager of the Class I areas that those areas will not be adversely affected by North Dakota sources. Furthermore, EPA offers no explanation why the statutory alternative maximum increases do not apply, instead of Class I increments.

EPA has never before made a SIP call on such a basis, nor has it ever adopted a SIP to nullify a variance granted by the Federal Land Manager which authorized issuance of a state PSD permit. Yet EPA has asked NDDH to undertake an unprecedented, costly and complex regulatory proceeding to model North Dakota major, minor and area sources and to adopt additional control measures for some or all of those sources, and has threatened a SIP call if it does not. Basin Electric requests NDDH to ask EPA to provide a substantial, detailed legal analysis to support its position before putting NDDH and North Dakota sources through a proceeding requiring the expenditure of millions of dollars in resources with the potential for requiring many hundreds of millions of additional control expenditures.

Basin Electric's Leland Olds Station ("LOS")

The Leland Olds Station, located in Mercer County, North Dakota is shown on the map below, as are North Dakota's Class I areas, TRNP North and South and Elkhorn Ranch Units and Lostwood Wilderness Area.



Map 1

LOS is more than 100 miles distant and downwind from the generally prevailing winds at TRNP Elkhorn Ranch Unit and Lostwood Wilderness Area, while it is approximately 87 miles from TRNP South Unit and 94 miles from TRNP North Unit, again downwind.

The Leland Olds Station was developed to meet a specific need for coal-fired thermal generation to supplement the existing federal hydro system in an integrated power supply for Basin Electric's member cooperatives. It was designed for what is generally known as a "base load plant". As a base load plant, it was expected that the plant would operate at full load around the clock, unless the facility needed to be backed down due to equipment failure or maintenance. During the baseline years of 1976-77, the plant was operating well below its design capacity. Operating levels increased significantly in later years, especially in the past decade, but the plant continues to operate below its design capacity.

Construction on LOS Unit No. 1 commenced in 1963 and was completed in 1965, several years before passage of the Clean Air Act (CAA) in 1970. The CAA required sources such as LOS to limit their emissions to meet national ambient air quality standards ("NAAQS") for SO2 and particulate matter. NAAQS were set at levels adequate to protect public health, with an ample margin of safety, and welfare, including any known or reasonably anticipated adverse effects on other important resources.

On September 10, 1971 a variance was issued to LOS by NDDH that required the installation of pollution control equipment specifically designed for LOS and approved by NDDH. The equipment selected and approved for LOS was a Research Cottrell electrostatic precipitator with a design efficiency for removal of particulate matter of 99.5%. (See Exhibit A, NDDH Permit No. 730004 dated June 1, 1973; Exhibit B, amended NDDH Permit No. 730004 dated April 11, 1977; Exhibit C, amended Permit No. 730004 dated March 12, 1990; and Exhibit D excerpt from LOS Title V Permit No. T5-F73004.) North Dakota regulations also imposed an SO2 emissions standard on LOS of 3.0 pounds of SO2 per million BTUs, North Dakota's allowable emissions standard applicable to LOS was included in a 1972 SIP approved by EPA.

LOS Unit 2 commenced construction in 1971 and completed construction in 1975. The source-specific allowable determination of particulate matter and SO2 concluded, similarly to Unit 1, that stringent particulate matter control was required, namely two Western Precipitator Division, Joy Manufacturing Company electrostatic precipitators with a particulate matter removal efficiency of 99.05%. No add-on controls were required to meet the SO2 NAAQS.

This letter will address the following:

I. HAS EPA ESTABLISHED THE NEED FOR A "SIP CALL" TO CURE INCREMENT "VIOLATIONS?"

II. THE DECISION ON WHETHER TO INITIATE A PROCEEDING BASED ON POSSIBLE INCREMENT EXCEEDANCE IS FIRST AND PRIMARILY A STATE DECISION. SUCH

A DECISION CAN BE REVERSED BY EPA ONLY IF EPA CAN DEMONSTRATE THAT IT IS CLEARLY ERRONEOUS, ARBITRARY OR CAPRICIOUS.

III. THE ALLOWABLE EMISSIONS OF BEPC'S LELAND OLDS STATION ARE INCLUDED IN BASELINE EMISSIONS AND DO NOT CONSUME INCREMENT. THESE EMISSIONS APPROXIMATE LOS'S "REPRESENTATIVE" EMISSIONS.

IV. RESPONSE TO SPECIFIC QUESTIONS.

V. TREATMENT OF INCREMENT-EXPANDING SOURCES.

I. Has EPA Established the Need for a "SIP Call" to Cure Increment "Violations?"

Prior to undertaking an unprecedented major proceeding to determine whether hundreds of millions of dollars of additional pollution control expenditures may be required for existing permitted plants in North Dakota, there should be a substantial showing of the need for such a proceeding. That need should be based on a reasonable belief that significant deterioration of air quality is occurring in North Dakota's Class I areas. An examination of the facts demonstrates that there is no reason to believe that such significant deterioration is taking place, and demonstrates good reasons to believe that air quality in those areas has improved and is continuing to improve.

The modeling proceeding being considered by NDDH under threat of an EPA SIP call would take many months and is likely to cost many millions of dollars to both the regulated community and the State of North Dakota. The need for such expenditures should have a sound basis.

A. Preliminary, modified CALPUFF modeling by the State of North Dakota is not an Adequate Basis for a SIP Call. There should be a sound and reasonable basis for determining that there is a likelihood of prohibited increment exceedances before a SIP proceeding to cure increment "violation" is undertaken.

EPA's basis for requiring a SIP call or its informal equivalent was stated in EPA's letter dated February 1, 2001, with its attached draft SIP call and technical support documents. It relied entirely on a very preliminary draft "Calpuff Class I Area Analysis for Milton R. Young Generating Station" dated May 24, 1999 ("Calpuff Modeling Report" hereafter), prepared by NDDH, relying heavily on technical support of the National Park Service. That analysis resulted from a minor modification proposed to the Milton R. Young plant, since withdrawn.

B. CALPUFF is not a Guideline Model, and may not, under North Dakota's EPA-approved SIP, be used for regulatory purposes in North Dakota without notice and opportunity for public comment.

NDDH air quality regulations provide that "All estimates of ambient concentrations required under this section must be based on the applicable air quality models, data bases, and other requirements specified in the "Guidelines on Air Quality Models" as supplemented by the "North Dakota Guideline for Air Quality Modeling Analyses" NDAC section 35-15-15-01-1.f.(1). The regulations provide that "[w]here an air quality impact model specified in the documents incorporated by reference in paragraph 1 is inappropriate, the model may be modified or another model substituted provided: (a) any modified or nonguideline model must be subjected to notice and opportunity for public comment under subsection 5." If the model is used as the basis for granting a permit, written approval must be approved by EPA. NDAC section 35-15-15-01-1.f.(2)(a) & (d).

The modeling that EPA has used as the basis for establishing the need for a SIP call, CALPUFF, is not a model contained in the "Guideline on Air Quality Models," nor has it been the subject of notice and opportunity for comment. These are requirements that both EPA and NDDH must follow under North Dakota regulations and because those regulations are contained in the EPA-approved North Dakota SIP. They have not been followed here, and should be complied with before serving as the basis for a SIP call or for threatening NDDH with a SIP call.

Even if CALPUFF were a Guideline Model, notice and opportunity would clearly be required before regulatory use of the model for purposes of a SIP call. The modeling done in this case was not the use of a standard or "off the shelf" version of Calpuff, but instead a highly modified version:

> "NDDH used the supporting software programs provided by Earth Tech . . . the primary model developer, for preparation of input data and interpretation of model results. However, modification of some of Earth Tech's programs and the preparation of numerous additional programs, was required to complete these tasks."

Calpuff Modeling Report, p. 3.

> Numerous other significant modifications and compromises were made to Calpuff:
>
> > "To keep disk storage and model execution time requirements practical, grid cell size was set to 20km. P. 5.
> >
> > Due to missing opaque cloud cover data "NDDH developed an objective scheme to extrapolate opaque from total cloud cover. This scheme was coded into a computer program . . . and applied to all surface data sets." P. 7
> >
> > "EPA recommendations were followed to substitute for other missing data (i.e., ceiling height, wind, pressure,

> temperature, relative humidity). Substitutions were made if data elements were missing for one or two consecutive hours . . . . The EPA substitution scheme was coded into a computer program . . . and applied to all surface data sets."
>
> *Id.*
>
> "Because of Calmet's [meteorological data processing part of Calpuff] fairly strict requirements on the completeness of upper-air data records and the frequency of missing upper-air data . . . much of the upper-air data processing was accomplished by running programs written by NDDH staff, along with a fair amount of manual file editing. The procedure consisted of . . . execution of two NDDH programs to fill in some missing data, and some manual editing to handle more complicated problems or fill in extended missing periods." PP. 7-8.
>
> "One problematic issue which arose during the testing of Calmet was a chronic discontinuity between surface and upper wind levels. . . . the NDDH modified the Calmet code to simply eliminate the vertical extrapolation in Step 2, resulting in a more realistic transition from surface to upper layers." P. 15.
>
> "John Vimont (NPS) provided initial advice on control file settings. Default values were used when other information was not available (i.e., most of the time). *** Values for selected Calpuff control file parameters/options were individually and systematically varied to determine effect on results and execution time" P. 18.

Thus, numerous changes and modifications were made to Calpuff. These were evidently important treatments of missing data, and extrapolations made to deal with it. Such changes can affect the results of the modeling critically, especially in the case of long range transport assessment of short terms impacts, where upper air data, especially wind direction and ceiling height, can be determinative of the outcome.

North Dakota has faced the need to develop and use a nonguideline air quality model to assess the impacts on air quality in North Dakota Class I areas on at least three occasions in the 1980s and 1990s. The initial development and acceptance of the model involved comprehensive, detailed, public review of and hearings on all appropriate modeling inputs, including wind field data, other meteorological and climate data, and modeling methodology. EPA, environmental groups, North Dakota citizens affected, and the regulated community all participated extensively in the public hearings. Those hearings resulted in the approval and use

of a MESOPUFF modeling protocol for the assessment of impacts on Class I areas. That modeling predicted exceedances of the SO2 Class I increments in North Dakota Class I areas.

As a result, proceedings were conducted by the Federal Land Managers to determine whether the SO2 emissions of the proposed sources would result in adverse impacts on air quality related values. In the case of every major source or major modification of a PSD source permitted in North Dakota since the beginning of the PSD program, it has been determined either that (1) there would be no exceedances of the applicable SO2 increments, or (2) if they would result in exceedance of the Class I SO2 increments, a variance was justified because there would be no adverse impacts on air quality related values in the Class I areas and there would be no exceedance of the alternative maximum allowable maximum increases specified in § 165(d)(2)(C)(iv) of the Clean Air Act, 42 U.S.C. § 7475(d)(2)(C)(iv). Several hundred millions of dollars of investment in electric generating, synfuels and gas processing facilities have been made in reliance on EPA- and NDDH-approved use of MESOPUFF and on these variance determinations. In view of this reliance, there should be a sound and compelling basis for discarding it.

In summary, Basin Electric submits that even taken on its own terms, the very preliminary and highly modified Calpuff modeling that has been done to date does not justify convening a major modeling hearing, especially when source attrition, variances, improving air quality, the lack of any pending regulatory action, and the lack of critical data are considered.

Early model runs with Calpuff, discussed in EPA's letter of February 1, 2000, had indicated possible Class I increment exceedance at two Montana Class I areas, namely Fort Peck Indian Reservation and Medicine Lakes Wilderness Area. Later model runs appropriately including Milton R. Young Station, Leland Olds Station and Stanton Station in the baseline resulted in compliance with the PSD Class I SO2 increments in those areas. See Memorandum from Steven F. Weber dated February 25, 2000. (Ex. E). We have assumed that this issue is no longer presented. If it were, there are numerous legal and technical requirements for such an interstate determination that have not been met that would have to be addressed before any determination justifying federal or state SIP calls could be made.

C. The latest evaluation (1993) and decision by the Department of Interior on whether North Dakota sources have an adverse effect on air quality related values in North Dakota Class I areas concluded that there were no such effects, and that alternative maximum allowable increases would be met, as have at least two prior proceedings.

The latest assessment of the impacts of SO2 on North Dakota's Class I areas was made on March 8, 1993 by the Federal Land Manager (FLM) of Theodore Roosevelt National Park and the Lostwood Wilderness Area. It occurred on the application by Dakota Gasification Company's Great Plains Synfuels Plant to increase its permitted, allowable emissions by 6,421 tons per year of SO2. The FLM made the following determinations:

"1. The *proposed increase in allowable emissions* should not increase perceptible plume impacts or contribute to regional haze impacts in either Theodore Roosevelt NP[National Park] or the Lostwood WA[Wilderness Area].

* * * * * * * * *

"3. There is no evidence of existing adverse impacts on biological resources due to air pollution at either Theodore Roosevelt NP or the Lostwood WA.

"4. In general, the air quality in North Dakota appears to have improved, for various reasons, since the FLM's last certification of no adverse impacts in 1984.

"5. The maximum predicted pollutant concentrations at Theodore Roosevelt NP and the Lostwood WA are well below the alternate Class I increments provided for in the Clean Air Act.

"6. There is no reason to believe that the *proposed new allowable emissions* from the GPSP would cause or contribute to impairment of the structure and functioning of ecosystems at Theodore Roosevelt NP or the Lostwood WA. Likewise, there should be no impairment to the visitor experience , or diminution of the national significance of the park or wilderness area."

58 Fed. Reg. 13639, 13640 (March 12, 1993).

In this 1993 proceeding, and in prior PSD proceedings, the allowable emissions from LOS and other grandfathered sources in North Dakota has always been included in the baseline concentration and were not modeled as increment consuming. EPA participated in prior North Dakota modeling and determinations based on MESOPUFF, as have the National Park Service and Federal Land Manager. EPA was required to approve in writing such modeling prior to the issuance of any permit.

These 1993 findings included the "existing impacts" of all relevant existing sources in North Dakota on the Class I areas in North Dakota, and found no evidence of adverse effects on biological resources, nor any reason to believe the additional SO2 emissions would increase perceptible plume impacts or regional haze impacts, nor any impairment of the structure and functioning of ecosystems, or the visitor experience.